

Christopher R. Culpepper

Christopher.R.Culpepper@gmail.com
(413) 376-5034

51 Irene St.
Chicopee MA 01013

www.github.com/cculpepper
www.ab1tj.com

CAREER OBJECTIVE

To continue my career in Electrical or Computer Engineering: solving interesting problems, designing electronic and/or RF hardware, or embedded software, preferably in the aerospace or subsurface domain.

EXPERIENCE

Electrical Engineer

October 2019 - Present

FTL Labs Corporation, Amherst MA

- Created RF chain to sample RADAR magnetron TX pulses
- Reverse engineered commercial RADAR to control magnetron (UART, GPIO, RF Mixer, LNA)
- Designed and built large li-ion battery for underwater applications, designed with safety in mind
- Designed, implemented acoustic threshold measurement system, with absolute SPL, HW + SW
- Designed interface electronics, analog piezo load cell interface, COTS LED module dimmer
- Designed PCB to expand IO in a ruggedized product, solenoid drive, 4-20mA, protected IO
- Reverse engineered commercial laser diode driver to implement circuit

Senior Electrical Engineer

Coop 2013-2017, FT 2017-2019

General Dynamics Mission Systems, Pittsfield MA

- Developed and executed evaluation and qualification tests for inherited hardware
- Performed software and systems testing on high-integrity mission-critical software
- Performed integration and repair operations on legacy hardware
- Performed tasking at customer locations and pre-deployment locations

Test Engineer Co-op

January 2016 - May 2016

Space Exploration Technologies, Hawthorne CA

- Designed and built hardware to test bias-T HD cameras
- Created software to automate the creation of trouble reports
- Troubleshoot issues with avionics test racks

EDUCATION

Bachelor of Science, Computer Engineering

Rochester Institute of Technology, Rochester NY, Graduated May 2017

Digital Signal Processing

Cyborg Theory

Data Communication and Networks

HW & SW Design for Crypto Applications

PROJECTS

24 Hours of Lemons Racecar

- Procured \$500 car, built it into an endurance racecar
- Designed and built roll cage, selected performance components

FPGA SDR RF Exploration (in progress)

- Building FPGA SDR exploration system to learn RF, VHDL, DSP, FPGA networking
- Initially using RF "lego" modules, transitioning to custom PCBs
- Created custom VHDL drivers for frequency generation, ADC, I2S
- Currently writing custom DMA SG drivers to send data to "real" computer for display

Home Networking (Homelab)

- Focus on internal and external services running on VMs, Linux, FreeBSD
- DIY'ed cables, on and off-site backup, storage
- VLAN separation, hardware PCI passthrough, PoE, NT4

Yaesu VX-8 Battery

- Designed, built and tested a battery for a handheld Amateur Radio
- Designed a PCB that features USB-C charging, balancing and temperature monitoring
- Designed a 3D printed case featuring compliant clips, light pipes and a tight internal layout

Various Other Projects:

Soviet 120mm² RGBW VFD driver
Motorcycle Speedometer

Racecar Rollcage and Endurance Prep
Race Car Data logger and Comms Board

SKILLS & AWARDS

Eagle Scout

A+ Certified

Languages & Software:

C
Kicad PCB Design Software
Linux (Arch, Debian, Red Hat)
VHDL
Python

Wireshark
AutoIt Automation Scripting
OpenSCAD and FreeCAD CAD Software
DOORS Requirement Management
Networking Equipment Configuration

PERSONAL INTERESTS AND HOBBIES

Amateur Radio Extra
Camping, hiking, and dancing
3D Printer
Photography (Analog, digital)

Holography (early stages)
Carbon fiber layup
Licked thing that was in space